



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/801,646	03/09/2001	Tetsuo Saeki	0717-0462P	3943

2292 7590 08/25/2003

BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER

PATEL, GAUTAM

ART UNIT	PAPER NUMBER
----------	--------------

2655

DATE MAILED: 08/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/801,646

Applicant(s)

SAEKI, TETSUO

Examiner

Gautam R. Patel

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Response to Amendment***

1. This is in response to amendment filed on 8-3-03 ( Paper # 9).
2. Claims 1-8 remain for examination.
3. Applicant's arguments regarding objection of drawings have been fully considered and objection of drawings has been **withdrawn**.

***Claim Rejections - 35 U.S.C. § 103***

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claims 1-8 are rejected under 35 U.S.C. ' 103(a) as being unpatentable over Koki, JPO publication 09-312033 (hereafter Koki) [Applicants admitted prior art] in view of Knight et al., US. patent 6,243,350 (hereafter Knight). NOTE: Since specification already summarizes the Koki patent in pages 1-7, these pages are used to describe the limitations for the convenience of the Applicants.

As to claim 1, Koki discloses the invention as claimed [see Figs. 5-7], including an optical pickup which has a stem [base], a light source, a light detector, and a light separating device comprising:

- a base [fig. 5, unit 500b] [pg. 1, line 12 to pg. 2, line 1];
- a light source [fig. 5, unit 101] provided on the stem [pg. 1, line 12 to pg. 2, line 1];

a light detector [fig. 5, unit 106] provided on the base for detecting light emitted by the light source which is reflected by an optical recording medium [pg. 1, line 12 to pg. 2, line 1]; and

a light separating device [fig. 5, unit 105] , divided into at least a first area and a second area, for separating the light incident on each of the first area and the second area into a plurality of light components and directing each of the light components in a prescribed direction [pg. 2-4],

wherein the light detector includes a light receiver, divided into a first light receiving region [fig. 7, 106a] and a second light receiving region [fig. 7, 106b], for receiving the light components directed by the first area of the light separating device, the first light receiving region and the second light receiving region are located so that a first direction is substantially perpendicular to a second direction, where the first direction is a direction of a phantom straight line connecting a light emitting point of the light source and a focal point on the light detector of the light transmitted through the light separating device, and the second direction is a direction of a dividing line for dividing the light receiver into the first light receiving region and the second light receiving region [pg. 2-4];

Koki discloses all of the above elements including a base [base] for putting all components next to each other. Koki does not specifically discloses type of the base material or related characteristics of that material i.e. temp coefficient of expansion and/or contraction of the base or other mounted components.

However, it is well known in the art that all system components are susceptible to temperature changes and there are two types of thermal compensation schemes, such as active and passive. Both are well known in the art. Also Knight clearly discloses:

a material of the base and a wavelength of the light from the light source are selected so that a distance of movement of the focal point on the light detector in a direction perpendicular to the second direction is within a prescribed tolerance limit, the movement being caused by a change in the wavelength of the light emitted by the light source and expansion or contraction of the base, which are both caused by a temperature change of the optical pickup apparatus [col. 22, line 54 to col. 23, line 33

and fig. 20A and 20B]. Both Koki and Knight are interested in improving the quality of signals in an optical disk device. Both Koki and Knight show light source objective lens, motor and plural related optical elements.

One of ordinary skill in the art at the time of invention would have realized that the system components of Koki system would have been sensitive to temperature and even though Koki has an active temperature compensation scheme it would be advantageous to provide an extra passive compensation scheme or replace active scheme with passive scheme to improve the quality of signals and reduce some components. Therefore, it would have been obvious to have used a passive thermal compensation scheme in the system of Koki as taught by Knight because one would be motivated to reduce thermal noise and related errors and provide better signal controls and improve quality of the signals [col. 22, line 32-53; Knight].

6. As to claim 2, Koki discloses:

a base [fig. 5, unit 500b] [pg. 1, line 12 to pg. 2, line 1];

a light source [fig. 5, unit 101] provided on the base [pg. 1, line 12 to pg. 2, line 1];

a light detector [fig. 5, unit 106] provided on the base for detecting light emitted by the light source which is reflected by an optical recording medium [pg. 1, line 12 to pg. 2, line 1]; and

a light separating device [fig. 5, unit 105] , divided into at least a first area and a second area, for separating the light incident on each of the first area and the second area into a plurality of light components and directing each of the light components in a prescribed direction [pg. 2-4],

wherein the light detector includes a light receiver, divided into a first light receiving region [fig. 7, 106a] and a second light receiving region [fig. 7, 106b], for receiving the light components directed by the first area of the light separating device,

the first light receiving region and the second light receiving region are located so that a second direction is inclined with respect to a direction perpendicular to a first direction [pages 5-6 and page 7, para. 2], where the first direction is a direction of a

Art Unit: 2655

phantom straight line connecting a light emitting point of the light source and a focal point on the light detector of the light transmitted through the light separating device, and the second direction is a direction of a dividing line for dividing the light receiver into the first light receiving region and the second light receiving region [pg. 2-4];

Koki discloses all of the above elements including a base [base] for putting all components next to each other. Koki does not specifically disclose type of the base material or related characteristics of that material i.e. temp coefficient of expansion and/or contraction of the base or other mounted components.

However, it is well known in the art that all system components are susceptible to temperature changes and there are two types of thermal compensation schemes, such as active and passive. Both are well known in the art. Also Knight clearly discloses:

a material of the base and a wavelength of the light from the light source are selected so that a distance of movement of the focal point on the light detector in a direction perpendicular to the second direction is within a prescribed tolerance limit, the movement being caused by a change in the wavelength of the light emitted by the light source and expansion or contraction of the base, which are both caused by a temperature change of the optical pickup apparatus [col. 22, line 54 to col. 23, line 33 and fig. 20A and 20B]. Both Koki and Knight are interested in improving the quality of signals in an optical disk device. Both Koki and Knight show light source objective lens, motor and plural related optical elements.

One of ordinary skill in the art at the time of invention would have realized that the system components of Koki system would have been sensitive to temperature and even though Koki has an active temperature compensation scheme it would be advantageous to provide an extra passive compensation scheme or replace active scheme with passive scheme to improve the quality of signals and reduce some components. Therefore, it would have been obvious to have used a passive thermal compensation scheme in the system of Koki as taught by Knight because one would be motivated to reduce thermal noise and related errors and provide better signal controls and improve quality of the signals [col. 22, line 32-53; Knight].

7. As to claim 3, Koki discloses:

a beam splitter [fig. 5, unit 102] for separating a part of the light reflected by the optical recording medium and directing the separated part to the light detector [pg. 1, line 12 to pg. 2, line 1],

Combination of Koki & Knight discloses all of the above elements including a base plate [base], lens mount base and lens cells and that compensation takes into account change of the wavelength [col. 22, lines 5467; Knight]. Combination of Koki & Knight does not specifically disclose that the beam splitter is also part of the thermal compensation scheme when wavelength changes to the extent claimed.

However, it is well known in the art that all modern system are placing more and more components on the same base or are integrating them as close as possible for space saving. It would be evident to one of ordinary skill in the art that these components will also be susceptible to temperature changes and some form of temperature compensation will be necessary for them.

Therefore, it would have been obvious to have used a passive thermal compensation scheme on the beam splitter which is located on the same base in the system of Koki because one would be motivated to reduce thermal noise and related errors and provide better signal controls and improve quality of the signals for the beam splitter in wake of changes in the wavelength also.

8. As to claim 4, it is rejected for the similar reasons set forth in the rejection of claim 3, supra.

9. As to claim 5, Koki discloses:

the light separating device is divided into at least the first area and the second area by a dividing line which is substantially perpendicular to a tracking direction of the optical recording medium [pg. 2-4].

10. As to claim 6, it is rejected for the similar reasons set forth in the rejection of claim 5, supra.

11. As to claim 7, Koki discloses:

the light receiver is divided into at least the first light receiving region and the second light receiving region by the dividing line which is substantially parallel to a dividing line for dividing the light separating device into at least the first area and the second area [pg. 2-4].

12. As to claim 8, it is rejected for the similar reasons set forth in the rejection of claim 5, supra.

Koki and Knight were cited as prior art references in paper no. 6, mailed 5-30-03.

13. Applicant's arguments filed on 8-3-03 ( Paper # 8) have been fully considered but they are not deemed to be persuasive for the following reasons.

14. In the REMARKS, the Applicant argues as follows:

A) That: "Knight offers no indication that the wavelength of light may be chosen so as to reduce the effect of temperature on performance, nor does Knight teach or suggest that the wavelength of the light itself at standard operating temperature may be used as a parameter for temperature compensation.' [page 14, para. 2; REMARKS].

FIRST: "the wavelength of light may be chosen so as to reduce the effect of temperature on performance'. This aspect of "choosing the one wavelength over another and by doing that which particular "performance" gets reduced effect of temperature is NOT claimed.

SECOND: For the sake of argument, even if that aspect was claimed [which it is not] Knight clearly indicates that negative effects can be reduced by alerting parameters according to wavelengths (i.e. Index dependence on the wavelength) [col. 22, lines 63-67].



B) That: "the thermal compensation scheme disclosed by Knight is directed to compensating for different properties from present invention. Knight does not describe any relationship between the focusing error signal and thermal correction." [page 15, para. 2; REMARKS].

FIRST: As mentioned before, Knight discloses BOTH active and passive thermal compensation. [col. 22, lines 43-53]. So Knight inherently provides for this scheme and clearly say that his system can do this [col. 22, lines 50-53].

SECOND: Knight also shows how he is doing this [col. 22, lines 25-39].

C) That: "Claim 2 recites that "the second direction is inclined so that when the focal point on the light detector moves while having a component of direction perpendicular to the second direction ...". [page 15, para. 2 to 16, para. 4; REMARKS].

The Examiner makes no reference to this feature in rejecting claim 2. ...

Neither Koki nor Knight describes inclining the second line so as to maintain the movement of the focal point perpendicular to a second line within a prescribed tolerance, ".

FIRST: The Applicants are correct in pointing out that a typographical error was made and this limitation was not pointed out as to exactly where Koki shows this feature. That paragraph was [and still is] rejected under Koki.

SECOND: However Koki clearly discloses this feature, including advantages of the feature [see pages 5-6 and last paragraph on page 7 of the specification].

D) That; "with respect to claim 1, the thermal compensation of Knight is directed to minimizing overall thermal variation of an optical train, not to reduce the change in light incident on first and second regions of light detector to within a prescribed tolerance limit. Knight in fact, s silent about the division of light detectors into regions and the orientation thereof.". [page 15, para. 5; REMARKS].

FIRST: Knight was NOT used for the division of the light detectors Koki was.

SECOND: division of light detectors is well known in the art for a long time and does not constitute patentable differentiation as such.

THIRD: Yes, the Applicants are correct that Knight is directed to minimizing overall thermal variation of an optical train.. But Knight also, furthermore, clearly discloses refractive indices [which by definition depend upon the light detection regions, as different regions have different indices] including their temperature dependence [see col. 22, lines 60-76].

15. **THIS ACTION IS MADE FINAL.** See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO **EXPIRE THREE MONTHS** FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

***Contact information***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is (703) 308-7940. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is (703) 872-9314.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To can be reached on (703) 305-4827.

Art Unit: 2655

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-4700 or the group Customer Service section whose telephone number is (703) 306-0377.

A handwritten signature in black ink, appearing to read "Gautam R. Patel", with a horizontal line drawn underneath the signature.

Gautam R. Patel  
Patent Examiner  
Group Art Unit 2655

August 24, 2003